APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/100,595	06/19/98	BIGUS J	IBM/04B

LMC1/0926

	EXAMINER
	STARKS, W

ART UNIT	PAPER NUMBER
2762	17

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DATE MAILED:
09/26/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No. 17

Application Number: 09/100,595
Filing Date: 19 JUNE 1998
Appellant(s): BIGUS, Joseph Phillip et al.

Scott A. Stinebruner
For Appellant

EXAMINER'S ANSWER

MAILED

SEP 2 6 2000

Group 2700

This is in response to appellant's brief on appeal filed 19 JULY 2000.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

The brief does not contain a statement identifying the related appeals and interferences

which will directly affect or be directly affected by or have a bearing on the decision in the

pending appeal is contained in the brief. Therefore, it is presumed that there are none. The

Board, however, may exercise its discretion to require an explicit statement as to the existence

of any related appeals and interferences.

(3)   Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4)   Status of Amendments After Final

No amendment after final has been filed.

(5)   Summary of Invention

The summary of invention contained in the brief is correct.

(6)   Issues

The appellant's statement of the issues in the brief is correct.

(7)   Grouping of Claims

Appellant's brief includes a statement that:

Claim Group I (claims 30-32, 36, 39-41, 45, 47, 49, 52-53, 55, 59-60, 62, 64-65, 68-

70, 74, and 76);

Claim Group II (claims 48, 63, and 77-80);

Claim Group III (claims 37-38, 56-58, and 66-67);

Claim Group IV (claims 42, 50, and 71);

Art Unit: 2762

Claim Group V (claims 43, 51, and 72); and

Claim Group VI (claims 44, 54, and 73)

do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and

(c)(8).

Appellant's brief includes a statement that claims do not stand or fall together and

provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

Appellant's brief includes a statement that claims do not stand or fall together and

provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) ***Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) ***Prior Art of Record***

The following is a listing of the prior art of record relied upon in the rejection of claims

under appeal.

5,875,437	Atkins	2-1999
5,644,727	Atkins	7-1997

Mitchell, Melanie "Introduction to Genetic Algorithms." The MIT Press,

Cambridge, Massachusetts, 1996, pp. 35-44.

(10)   Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 30-32, 36-45, 47-60, 62-74, 76-80 are rejected under 35 U.S.C. 102 (e). This

rejection is set forth in prior Office action, Paper No. 13.

Claims 49-60, 62-74, and 76-80 are rejected under 35 U.S.C. 101. This rejection is

set forth in prior Office action, Paper No. 13.

(11)   Response to Argument

With respect to the 35 U.S.C. §101 rejections, Applicant argues the following:

I.   Applicant argues that "Claims 49-60, 62-74 and 76-80 were improperly rejection

under 35 U.S.C. §101 as being-directed to non-statutory subject matter...Examiner's position

is unsupported by either current case law or the United States Patent and Trademark Office's

own Examination Guidelines for Computer-Related Inventions (hereinafter the "USPTO

Guidelines I')."

II.   "The selection of a program module recited in each of the aforementioned claims is not

merely a manipulation of abstract ideas or mathematical formulas, but rather a useful,

concrete, and tangible result is obtained by virtue of the optimization of the operation of an

intelligent agent in performing the recited computer task."

III.   Applicant argues "…as to claims 49 and 64, these claims specifically recite the

practical application of the claimed method and apparatus in "conducting negotiations in an

electronic commerce application;""

IV.   "… as to claim 78, this claim specifically recites the determination of risk in a remote

computer system, and the subsequent optimization of an intelligent agent based upon the

determined risk. Applicants respectfully submit that these specific recitations of practical utility

are all that is necessary to define a statutory invention consistent with State Street Bank and

AT&T."

V.   "…under the analysis set forth by the USPTO Guidelines, Applicants' claims are

statutory. First, each claim is classified in a statutory category -- a process for each of

claims 49 and 78, and a machine for claim 64."

VI.   "Second, each claim in the least recites a statutory process'. Specifically, each claim

either recites the manipulation of data representing physical objects or activities to achieve a

practical application, or each is limited to a practical application in the technological arts, as is

required by Sections IV.B.2(b)(1) and (ii) of the USPTO Guidelines."

VII.   "As to claim 49, this claim is limited to "configuring an intelligent agent" to perform a

common computer task that includes "conducting negotiations in an electronic commerce

application.""

VIII.   "As to claim 64, this claim recites an intelligent agent in which at least one of a

plurality of program modules is "selected" to handle a computer task that includes "conducting

negotiations in an electronic commerce application.""

IX.   "As to claim 78, this claim recites determining the risk for a remote computer system,

and "configuring an intelligent agent" to perform a common computer task based upon such

determined risk. None of the claims therefore are broad enough to encompass the mere

manipulation of abstract ideas."

X.   "...claims 49 and 78 are in many ways analogous to the Neural Network example from

the Training Materials Directed to Business, Artificial Intelligence, and Mathematical

Processing Applications (hereinafter, the "Training Materials," the relevant portion of which is

attached as Appendix B), provided as a supplement to the USPTO Guidelines'."

XI.   "Examiner's analysis would appear to require Applicants' claims to recite the

transformation of "certain substances." however, Applicants are unsure as to what exactly

would constitute such transformation, or why Applicants' claims do not meet this supposed

requirement. The Examiner's brief yet all-inclusive basis for rejection of all of the claims is

silent as to what specifically is deficient in Applicants' claims."

XII.   "Applicants note that neither the USPTO Guidelines nor the Training Materials are

binding authority with respect to 35 U.S.C. §101; however, such materials are persuasive

authority as to the USPTO's position with regard to analysis of claims for statutory subject

matter, and the analysis of Applicants' claims on the basis of these authorities is therefore

submitted as further support for Applicants' position."

XIII.   "As for claim 64, the Neural Network example is not specifically on-point.

Nonetheless, given that the recited intelligent agent is configured to include at least one of a

plurality of program modules configured to handle a common computer task that includes

conducting negotiations in an electronic commerce application, Applicants submit that

claim 64 is directed to statutory subject matter."

XIV. "However, the disclosed "personal digital assistant" in Atkins refers to a handheld computer -- not an intelligent agent computer program (see Atkins, col. 30, lines 45-53 and PDA 34 shown in hardware system Fig. 2). The passage otherwise is *silent* as to conducting negotiations using an intelligent agent or agent autonomy, as alleged by the Examiner."

XV. "As to the second passage, this passage does not even relate to conducting negotiations, electronic commerce or agent autonomy, as is apparently alleged by the Examiner. Rather, the cited passage refers to expert-based financial planning that in some embodiments is capable of using competitive or cooperative agents to plan investment strategies, a field that is completely irrelevant to agent-based negotiation."

XVI. "Under either anticipation or obviousness analysis, however, Mitchell falls to render claim 63 unpatentable. The cited passage of Mitchell discusses an agent "ecosystem" where agents interact with one another through combat, trading or mating to evolve a population of agents. Agents decide how to interact based upon internal rules and outward physical characteristics of other agents. If the Examiner is relying on inherency, Mitchell does not disclose the concept of "risk that a dispatched agent is subjected to in negotiations", as *no electronic commerce negotiations are disclosed in the reference*."

XVII. "Moreover, Mitchell is silent as to the concept of selecting program modules for an agent, as well as the concept of doing so based upon risk. Even if the Examiner is relying on obviousness, Mitchell likewise fails to render claim 63 unpatentable, as neither Mitchell nor Atkins, alone or combination, suggests the concept of selecting among multiple program modules for an agent based upon the risk that an agent is subjected to in negotiations."

Applicant's arguments are answered as follows:

I.   Applicant argues that "Claims 49-60, 62-74 and 76-80 were improperly rejection under 35 U.S.C. §101 as being-directed to non-statutory subject matter...Examiner's position is unsupported by either current case law or the United States Patent and Trademark Office's own Examination Guidelines for Computer-Related Inventions (hereinafter the "USPTO Guidelines I')."

Examiner's position is consistent with the Diehr-Alappat-Warmerdam-State Street-AT&T line of cases, as well as the Guidelines. This action is sent to provide a "roadmap" to the Examiner's reasoning and to give Applicant ample opportunity to respond to the issues raised.

II.   "The selection of a program module recited in each of the aforementioned claims is not

merely a manipulation of abstract ideas or mathematical formulas, but rather a useful,

concrete, and tangible result is obtained by virtue of the optimization of the operation of an

intelligent agent in performing the recited computer task."

Applicant's representative argues, in substance *that the selection of which subroutine in*

a computer program should be run is "useful, concrete, and tangible" under the State Street

standard set forth by the Federal Circuit.

Examiner disagrees.

In Examiner's view, this sort of claim is a clear trigger for *In re Warmerdam*, 31

USPQ2d 1754 (Fed. Cir. 1994). In that case, the Federal Circuit made it quite clear that:

"...taking several abstract ideas and manipulating them together adds nothing to the basic

equation." *In re Warmerdam*, at 1759. The "USPTO Guidelines" are not at variance with this

view.

In the present case, the computer programs themselves are abstractly disclosed and **the**

simple selection of one program over another "adds nothing to the basic equation." It will

be shown later that the tasks each program performs are nonstatutory and lend nothing in the

way of limitation to the claims. If it the programs had done this, Examiner would have

recognized the use that made the claims statutory and withheld rejection -- but such is not the case. Examiner finds Applicant's argument to be quite erroneous.

III.   Applicant argues "...as to claims 49 and 64, these claims specifically recite the practical application of the claimed method and apparatus in "conducting negotiations in an electronic commerce application;" "

This statement by Applicant's representative is not quite correct. These claims are *actually* limited to "...a common computer task that **incudes** conducting negotiations in an electronic commerce application..." (emphasis added.)

The Federal Circuit made clear in *Warmerdam* that:

"Claims should be evaluated by their limitations, not by what they incidentally cover." *In re Warmerdam*, at 1758.

It is clear that the *actual* claim limitations are drawn to a "common computer task" that

incidentally covers (i.e., "**includes**") the task of "conducting negotiations in an electronic

commerce application." Following the Federal Circuit's reasoning in *Warmerdam*, Examiner

finds that the "limitation" recited by Applicant's representative is actually incidental coverage

that is not a "limitation" at all.

Applicant's argument is clearly erroneous to even the most casual observer. Claims 49

and 64 stand rejected.

IV.   "... as to claim 78, this claim specifically recites the determination of risk in a remote

computer system, and the subsequent optimization of an intelligent agent based upon the

determined risk. Applicants respectfully submit that these specific recitations of practical utility

are all that is necessary to define a statutory invention consistent with State Street Bank and

AT&T."

Not quite.

Applicant "determines" the "risk" in a remote computer, "optimizes an intelligent

agent" and cites this as a useful, concrete and tangible use. The thing that is missing in the

claim is the **kind** of risk that is claimed. Each kind of risk has its own algorithmic

embodiment. Applicant merely discloses the **idea** of risk in this claim. Is it the risk associated

with rising and falling values of currencies or commodities? Is it the risk associated with

deceptive trading practices? Is it the risk associated with the other traders' credit worthiness?

Is it the risk that private information could be disclosed? No limitation in Applicant's claims

addresses these pertinent questions. If Applicant's answer to all of these questions is "yes"

then it is clear that no particular risk limitation is intended. At this point, Examiner must

again apply the holding of *Warmerdam*:

"...taking several abstract ideas and manipulating them together adds nothing to the basic

equation." *In re Warmerdam*, at 1759.

"Claims should be evaluated by their limitations, not by what they incidentally cover." *In re*

Warmerdam, at 1758.

Giving the word "risk" its broadest reasonable interpretation, Examiner finds that taking the

idea of "risk" and manipulating it in an abstract computer program (i.e., the "intelligent

agent") adds nothing to the basic equation. The claim is an abstract idea.

V.   "...under the analysis set forth by the USPTO Guidelines, Applicants' claims are

statutory. First, each claim is classified in a statutory category -- a process for each of

claims 49 and 78, and a machine for claim 64."

This statement is at variance with current case law and USPTO policy. Specifically,

the Federal Circuit held in *AT&T v. Excel*, 50 USPQ2d 1447 (Fed. Cir. 1999) held that:

"Whether stated implicitly or explicitly, we consider the scope of Section 101 to be the same

regardless of the form -- machine or process -- in which a particular claim is drafted." *AT&T*

v. Excel, 50 USPQ2d 1447, 1452 citing *In re Alappat*, 33 F.3d at 1581, 31 USPQ2d

at 1589 (Rader, J., concurring)

Examiner finds that it makes no difference that Applicant *claims* a "process."' If the claim can

be analyzed to be abstract under current Section 101 doctrine, it is abstract without ambiguity.

Looking at the passage quoted above, Examiner's position is consistent with *Alappat* and

AT&T and is implicitly consistent with *Warmerdam* and *State Street*.

VI.   "Second, each claim in the least recites a statutory process'. Specifically, each claim

either recites the manipulation of data representing physical objects or activities to achieve a

practical application, or each is limited to a practical application in the technological arts, as is

required by Sections IV.B.2(b)(1) and (ii) of the USPTO Guidelines."

Applicant has not yet recited a statutory process that would satisfy the claims.

Examiner eagerly awaits any use that properly satisfies 35 U.S.C. 101.

VII.   "As to claim 49, this claim is limited to "configuring an intelligent agent" to perform a

common computer task that includes "conducting negotiations in an electronic commerce

application.""

This statement by Applicant's representative is not quite correct. The claim is *actually*

limited to "...a common computer task that **incudes** conducting negotiations in an electronic

commerce application..." (emphasis added.)

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task" that *incidentally covers* (i.e., "**includes**") the task of "conducting negotiations in an

electronic commerce application." Following the Federal Circuit's reasoning in *Warmerdam*,

Examiner finds that the "limitation" recited by Applicant's representative is actually incidental

coverage that is not a "limitation" at all.

Applicant's argument is clearly erroneous to even the most casual observer. Claim 49

stands rejected.

VIII.   "As to claim 64, this claim recites an intelligent agent in which at least one of a

plurality of program modules is "selected" to handle a computer task that includes "conducting

negotiations in an electronic commerce application.""

Applicant's representative argues, in substance *that the selection of which subroutine in*

a computer program should be run is "useful, concrete, and tangible" under the State Street

standard set forth by the Federal Circuit.

Examiner disagrees.

In Examiner's view, this sort of claim is a clear trigger for *In re Warmerdam*, 31

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"...taking several abstract ideas and manipulating them together adds nothing to the basic

equation." *In re Warmerdam*, at 1759.

The "USPTO Guidelines" are not at variance with this view.

In the present case, the computer programs themselves are abstractly disclosed and the

simple selection of one program over another "adds nothing to the basic equation." The tasks

each program performs is nonstatutory and lends nothing in the way of limitation to the

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the claims statutory and withheld rejection -- but such is not the case. Examiner finds

Applicant's argument to be quite erroneous.

IX.   "As to claim 78, this claim recites determining the risk for a remote computer system,

and "configuring an intelligent agent" to perform a common computer task based upon such

determined risk. None of the claims therefore are broad enough to encompass the mere

manipulation of abstract ideas."

Applicant "determines" the "risk" in a remote computer, "configures an intelligent

agent" and cites this sequence as a useful, concrete and tangible use. The thing that is missing

in the claim is the **kind** of risk that is claimed. Each kind has its own algorithmic

embodiment. Applicant merely discloses the **idea** of risk in this claim. As noted in the

response to argument IV above. The claim is nonstatutory.

X.   "...claims 49 and 78 are in many ways analogous to the Neural Network example from

the Training Materials Directed to Business, Artificial Intelligence, and Mathematical

Processing Applications (hereinafter, the "Training Materials," the relevant portion of which is

attached as Appendix B), provided as a supplement to the USPTO Guidelines'."

This is not at all true. An arbitrary computer program such as an "agent" is not like a

neural network. "Agents" are, by definition, computer programs. It is for this reason that

Examiner looks to *Diamond, Commissioner of Patents and Trademarks v. Diehr and Lutton*

for the definition of a "process":

"The process <u>requires</u> that **certain things** should be done with **certain substances**, and **in a

certain order**; but the tools to be used in doing this may be of secondary consequence."

Diamond, Commissioner of Patents and Trademarks v. Diehr and Lutton, 209 USPQ 1, 6 (US

SupCt 1981) quoting *Cochrane v. Deener*, 94 U.S. 780, 787-788 (1876) (emphasis added.)

This holding is not quite as harsh as it seems. Examiner believes that the term "substance" is a

"term of art". Examiner reads the term "substances", in light of subsequent Federal Circuit

holdings, to mean more than the traditional examples of "substances". The Federal Circuit

has implicitly held that "anti-aliased, pixel illumination data" are substances (cf. *Alappat*,

at 1558) and that "discrete dollar values" are substances (cf. *State Street*, at 1601).

In both cases, the Federal circuit held that the manipulation or transformation of data

representing these things renders a claim statutory.

Why does Examiner believe that the Federal Circuit complies with the *Deener-Diehr* definition of a statutory "process" -- aside from the fact that the definition originated from a Supreme Court holding that is **older** than the Patent Act and was **reaffirmed** in *Diehr* since the Act was passed? Well, the holding in *Warmerdam* puts it cogently:

"...taking several abstract ideas and manipulating them together adds nothing to the basic equation." *In re Warmerdam*, at 1759.

This is a situation where "certain things" were done to things that were *not* "certain substances" (i.e. "Bubble hierarchies") in a "certain order." This is the flip-side of *Diehr*. The Federal Circuit expressly excluded "Bubble hierarchies" from being "substances", as it were. They are abstract ideas that, when manipulated together, "add nothing to the basic equation." In the language of Diehr, the act of manipulating "bubble hierarchies" is not a statutory "process" because one would be doing "certain things" to things that were not "certain substances" (i.e. *abstract* from substance) in a "certain order."

The analysis is consistent.

Examiner's analysis follows these holdings to the letter. Manipulations of abstract references to "risk" and arbitrary computer programs are insufficient to make the claims statutory.

Now, were Applicant to amend his claims to be *limited* to transforming some *substance* -- such as -- "discrete dollar values", for instance, Examiner would be bound by law to find Applicant's claims to be statutory. As it stands, such limitations have not been amended into the claims. Accordingly, Examiner finds Applicant's arguments to be quite insufficient to overcome the rejection.

XI. "Examiner's analysis would appear to require Applicants' claims to recite the transformation of "certain substances," however, Applicants are unsure as to what exactly would constitute such transformation, or why Applicants' claims do not meet this supposed requirement. The Examiner's brief yet all-inclusive basis for rejection of all of the claims is silent as to what specifically is deficient in Applicants' claims."

See analysis in response to argument "X" above.

XII. "Applicants note that neither the USPTO Guidelines nor the Training Materials are binding authority with respect to 35 U.S.C. §101; however, such materials are persuasive authority as to the USPTO's position with regard to analysis of claims for statutory subject matter, and the analysis of Applicants' claims on the basis of these authorities is therefore submitted as further support for Applicants' position."

True, the Guidelines are persuasive authority -- but regardless of how they are interpreted, they cannot go beyond the restrictions found in the **binding** authority found in Supreme Court holdings, Federal Circuit holdings, and The Patent Act. The Guidelines are consistent with current case law, this Examiner's opinions are consistent with both binding and persuasive authorities.

XIII.   "As for claim 64, the Neural Network example is not specifically on-point. Nonetheless, given that the recited intelligent agent is configured to include at least one of a plurality of program modules configured to handle a common computer task that includes conducting negotiations in an electronic commerce application, Applicants submit that claim 64 is directed to statutory subject matter."

True, the neural network example, raised by Applicant, is not on-point.

The published examples regarding neural networks tend to regard them, in Examiner's opinion, as a special class where they are treated as "substances" that are statutory when they are *trained* or their **synapses** are *specially configured*. This is not so of *all* computer programs.

In Examiner's opinion, neural networks inherently have ambiguous characteristics that cause them to straddle the substance/algorithm line (and hence, the legal line). While simply

modeling actual neural systems, neural networks go further to operate in the real world as

actual neural networks do.

How should the ambiguity be resolved?

Notice that the output of neural networks is a vector of **neural intensities** that is

analogous to the **pixel intensities** in *Alappat*. The manipulation of data in an effort to arrive at

these useful intensity patterns contributes to a finding of usefulness.

Furthermore, Since the training/configuration algorithms are so *narrowly applicable* to

the configuration of **synapses** of the neurons to produce these neural intensities, that *narrow*

application may be used as a **rational basis** to find enough of a *limited use* to resolve the

conflict in favor of regarding them as special statutory subject matter -- in Examiner's opinion.

The inherent ambiguity of the neural network art, the structure that is analogous to a

decided case (i.e., *Alappat*), and the inherent limited use of training/configuring the system all

combine to justify a rational basis to treat neural networks as a special case of "substance".

Understand, the USPTO has not yet stated much policy on this issue. The statements made

herein are only the solitary reflections of the Examiner.

Regardless of all this theory, Applicant's representatives present nothing that is so

specifically limiting. Applicant's agents do not necessarily contain neural networks that are

specifically trained or configured. They are easily distinguishable as arbitrary "agents" (i.e.,

arbitrary computer subroutines) that are arbitrarily configured. This is classic nonstatutory

subject matter. Applicant's neural network arguments are unpersuasive and the rejections

stand.

XIV.   "However, the disclosed "personal digital assistant" in Atkins refers to a handheld

computer -- not an intelligent agent computer program (see Atkins, col. 30, lines 45-53 and

PDA 34 shown in hardware system Fig. 2). The passage otherwise is *silent* as to conducting

negotiations using an intelligent agent or agent autonomy, as alleged by the Examiner."

Applicant admits in his brief that agents are used for negotiations in the prior art:

"Indeed, Atkins discloses at col. 34, lines 19-21 the use of interactive agents for

negotiating" Applicant's Appeal Brief, page 12, second full paragraph, lines 2-3.

XV.   "As to the second passage, this passage does not even relate to conducting negotiations,

electronic commerce or agent autonomy, as is apparently alleged by the Examiner. Rather, the

cited passage refers to expert-based financial planning that in some embodiments is capable of

using competitive or cooperative agents to plan investment strategies, a field that is completely

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XVI.   "Under either anticipation or obviousness analysis, however, Mitchell fails to render claim 63 unpatentable. The cited passage of Mitchell discusses an agent "ecosystem" where agents interact with one another through combat, trading or mating to evolve a population of agents. Agents decide how to interact based upon internal rules and outward physical characteristics of other agents. If the Examiner is relying on inherency, Mitchell does not disclose the concept of "risk that a dispatched agent is subjected to in negotiations", as no electronic commerce negotiations are disclosed in the reference."

Electronic commerce negotiation by agents is found in the primary reference, as Applicant admits in his brief:

"Indeed, Atkins discloses at col. 34, lines 19-21 the use of interactive agents for negotiating" Applicant's Appeal Brief, page 12, second full paragraph, lines 2-3.

Agents in such negotiations are inherently involved in a risky endeavor. The evolutionary system in the Mitchell textbook was used to show how agents react under such changes in their environments.

XVII. "Moreover, Mitchell is silent as to the concept of selecting program modules for an agent, as well as the concept of doing so based upon risk. Even if the Examiner is relying on obviousness, Mitchell likewise fails to render claim 63 unpatentable, as neither Mitchell nor Atkins, alone or combination, suggests the concept of selecting among multiple program modules for an agent based upon the risk that an agent is subjected to in negotiations."

Electronic commerce negotiation by agents is found in the primary reference, as Applicant admits in his brief:

"Indeed, Atkins discloses at col. 34, lines 19-21 the use of interactive agents for negotiating" Applicant's Appeal Brief, page 12, second full paragraph, lines 2-3.

Agents in such negotiations are inherently involved in a risky endeavour. The evolutionary system in the Mitchell textbook was used to show how agents react under such changes in their environments.

Furthermore, selection of the best agent is inherent in an evolutionary system such as the genetically programmed systems in the prior art. These programs are selected based on their fitness to do the task. If an agent does not manage risk well, it is no longer selected.
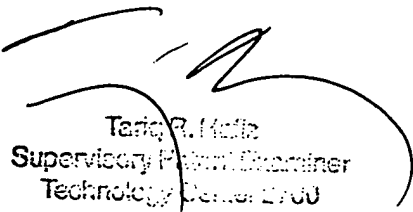
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

WLS
September 25, 2000

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